IN THE CLAIMS

Applicant acknowledges that pending claims 52, 78, 89, 90, and 99 are rejected in the instant Office Action. Further, pending claims 79-88, 91-98, and 100-108 are objected to in the instant Office Action.

Applicant herewith cancels claims 52, 78, 79, 91, 92.

Applicant herein submits new claims 109-108 as readable on the previously elected invention of Group III.

The listing of claims set forth below identifies the disposition of the various claims in the Office Action.

The claims submitted herein contain 10 (ten) new independent claims, 51 (fifty-one) new dependent claims. Further, herein also are 7 (seven) currently amended claims, and 21 (twenty-one) original claims as resubmitted from Applicant's response to the Office Action of 21 August 2003. A fee for 10 (ten) independent and 58 (fifty-eight) dependent claims is enclosed.

The new claims herein submitted contain no new matter, and fall completely within the scope of the material set out in the originally filed documents.

I claim:

1-20 (original)

1-20 (canceled)

21-78 (new)

21-51 and 53-77 (withdrawn)

52, 78, 79, 91, and 92 (canceled)

109 (new):

A means of configuring an output of a configurable power supply, comprising:

interfacing means for electrically coupling said power supply to independently and simultaneously access both a previously unknown battery-powered device and an installed battery thereof, said coupling resulting in the power supply being capable of bypassing said battery as a source of power for the powered device, without limiting said battery's ability to automatically access said device;

preloading means for temporarily electrically coupling to the battery at least one of one or more substantial resistive loads, said resistive loads being capable of combining in order to vary the coupled load;

processing means accessible to said power supply for executing program instructions embodied on a computer-readable medium, comprising:

detecting means for acquiring at least one value as to voltage sag resulting from said preloading;

analyzing means for evaluating the acquired voltage-sag value and determining an anticipated fully-charged battery voltage;

said analyzing means further for producing an output voltage value of the configurable power supply by performing in a work space at least one of one or more predetermined computations based on acquired and memorized voltage values, and

controlling means accessible to said processing means and power supply for configuring the output voltage of the power supply to said previously produced output voltage value,

whereby, said power supply delivers a suitably configured power signal to said device.

110 (new):

The predetermined computations of claim 109, wherein the memorized voltage values are stored in a look-up table comprising at least one of one or more substantial matrices of battery design parameters.

111 (new):

The configurable power supply of claim 109, wherein said power supply is a module electrically coupled between a fixed-voltage power supply and the battery, whereby the interposed module reconfigures an inputted fixed voltage signal to be then output as a voltage signal of a value determined said analyzing.

112 (new):

The detecting means of claim 109, wherein a no-load maximum battery voltage value is acquired prior to said acquiring a value representing voltage sag, then a predetermined computation of both acquired values results in an optimized voltage value to which the power supply is configured, thereby eliminating said computations requiring the memorized voltage values.

113 (new):

The preloading means of claim 109, further including a switch accessible to said battery and said substantial resistive loads for varying the coupled load applied to said battery by combining resistive loads.

114 (new):

A means of configuring an output voltage signal of a configurable power supply for powering a battery-powered device, comprising:

> interconnecting means for electrically coupling said power supply to independently and simultaneously access both a previously unknown battery-powered device and an *in situ* battery thereof;
>
> preloading means for temporarily electrically coupling to the battery at least one of one or more substantial resistive loads, said resistive loads being capable of combining in order to vary said load;
>
> processing means accessible to said power supply for executing program instructions embodied on a computer-readable medium, comprising:
>
> > detecting means for acquiring and storing battery voltage values, at least one of which is a voltage-sag value resulting from said preloading;

analyzing means for producing an output voltage value of the configurable power supply by performing in a work space at least one of one or more predetermined computations based on acquired voltage values, and

controlling means accessible to said processing means and power supply for configuring the output voltage signal of the power supply to said previously produced output voltage value;

whereby a configured voltage signal is delivered to said battery-powered device from said power supply, instead of from said battery.

115 (new):

The interconnecting means of claim 114, wherein said coupling results in the power supply being capable of bypassing said battery as a source of power for the powered device, without limiting said battery's ability to automatically access said device.

116 (new):

The interconnecting means of claim 114, wherein a connector interface interposed electrically at an existing connector located between said battery and said powered device provides said power supply access to both the battery and the power supply.

117 (new):

The power supply of claim 114, wherein the power supply is located within a battery enclosure, so that both the battery and the power supply are within the battery-powered device.

118 (new):

The power supply of claim 117, wherein said battery enclosure is removable.

119 (new):

The analyzing means of claim 114, further including predetermined computations based on both acquired and memorized voltage values, said

memorized values in a look-up table representing at least one of one or more substantial matrices of battery design parameters.

120 (new):

The detecting and analyzing means of claim 114, further including acquiring an output voltage signal from the configured power supply, which is then compared to said previously produced output voltage value, for assuring that the voltage being output by the power supply is sufficient to operate the device under the actual load of the device.

121 (new):

The assuring of claim 120, wherein the output voltage of the power supply is increased if the actual load of the device causes the output voltage to sag.

122 (new):

A means of configuring an output voltage of a configurable power supply, comprising:

attaching means for electrically coupling said power supply to independently and simultaneously access a previously unknown battery-powered device and a battery electrically coupled thereto;

processing means accessible to said power supply for executing program instructions embodied on a computer-readable medium, comprising:

detecting means for acquiring battery voltage values, at least one of which is based on temporarily electrically coupling to said battery one or more available resistive elements, said elements capable of being combined for providing variable resistances;

analyzing means for determining an output voltage value for the configurable power supply by performing in a work space at least one of one or more predetermined computations based on the acquired voltage sag and fully-charged battery voltage values, and

controlling means accessible to said processing means and power supply for configuring the output voltage of the power supply to said previously determined output voltage value.

123 (new):

The configurable power supply of claim 122, wherein said power supply is an equivalently-configured discrete module that is electrically coupled between an upstream manually-configurable power supply and the downstream battery and powered device, so that an output voltage signal of the manually-configurable power supply is input at the module for determining that the manually-configured voltage signal substantially matches said previously determined output voltage value, whereby, only if the voltages do substantially match does the output voltage signal of the manually-configurable power supply pass through the module and on to said powered device.

124 (new):

The acquiring means of claim 122, further including acquiring a no-load battery-voltage value which, should the voltage sag value not be valid, provides instead a value in an alternate predetermined computation for determining an output voltage value for said configurable power supply.

84 (currently amended):

The ~~transfer of electrical signals between said configurable power supply and said battery-powered device~~ attaching means of claim 122, further including in both said configurable power supply and said battery-powered device a means of inter-device communications for transferring data signals.

85 (previously presented):

The means of inter-device communications of claim 84, further including additional program instructions for configuring processors at said configurable power supply and at said battery-powered device respectively to transfer data signals by at least one communications medium selected from the group consisting of powerline modulation, and wireless infrared, and serial/parallel data protocols.

86 (currently amended):

The acquired ~~minimum and maximum~~ battery voltage values of claim 122, wherein said values are retained in memory for use in further program instructions to configure said processor for calculating a voltage that represents at least a first output value of said configurable power supply.

125 (new):

A method of configuring an output of a configurable power supply, comprising:

electrically coupling said power supply to access both a previously unknown battery-powered device and a battery installed therein;

processing program instructions embodied on a computer-readable medium accessible to said power supply, comprising:

acquiring a value expressing battery voltage sag by temporarily preloading said battery with at least one of one or more substantial resistive loads from accessible resistive elements that are variable by a combining thereof;

analyzing the acquired value for determining an anticipated fully-charged battery voltage;

performing at least one of one or more predetermined computations for producing an output voltage value based on memorized voltage sag and fully-charged battery voltage values, and

controlling the configurable power supply to output the voltage value resulting from the predetermined computation;

whereby said power supply accesses said powered device and delivers the resulting output voltage thereto.

126 (new):

The analyzing means of claim 125, further including an output voltage signal of said configured power supply being acquired and compared to the output voltage value, then being adjusted by said controlling means if the acquired power supply

output voltage is substantially lower than the anticipated voltage value, thereby reconfiguring the output in order to compensate for the actual resistive load of the powered device exceeding the load applied when preloading the battery.

127 (new):

The acquired value of claim 125, wherein a first no-load maximum battery voltage value is acquired, then a second value representing voltage sag caused by preloading said battery is acquired, and a predetermined computation of both values determines the voltage value to which the output of the power supply is configured.

88 (currently amended):

The configurable power supply of claim 125, wherein said power supply is incorporated into a discrete modular apparatus for interconnecting in-line between an existing external power-conversion adapter and said ~~connector assembly~~ device and battery.

128 (new):

A means of preloading a battery, comprising:

> interconnecting means for electrical coupling said battery, a battery-powered device, and a configurable power supply into a user-configured circuit for providing the battery independent and simultaneous access to both said device and said power supply, comprising:
>
> identifying means for distinguishing a specific interconnecting circuit element by its predetermined unique resistive value;
>
> processing means for executing program instructions embodied on a computer-readable medium, comprising:
>
> > means for providing a memorized sequence of anticipated user-manipulations of each circuit element based on its corresponding resistive value in a look-up table;

instructing means for directing the user to manipulate at least one of one or more circuit elements according to said sequence,

acquiring means for detecting resistive values;

determining means for assigning values to variables in the look-up table;

analyzing means for first adjusting in a work space said acquired resistive value by an allowable error factor, then for validating that the user manipulation is either valid or invalid by comparing the adjusted resistive value to values in the look-up table;

prompting means for indicating a valid or invalid manipulation to the user;

interposing means for preloading said battery by temporarily electrically coupling a substantial resistive element to said battery, and

said acquiring, determining, analyzing, and prompting means continuing until user-manipulations result in an electrical circuit into which said substantial resistive element for preloading said battery is temporarily interposed.

129 (new):

The interconnecting means of claim 128, wherein the power supply is electrically coupled in a closed circuit first to the battery for accessing battery voltage data, while the battery maintains its ability to access the powered device, as does the power supply also access the powered device along the same circuit by bypassing the battery.

130 (new):

The instructing means of claim 128, further including a placard with indicia for directing the user to manipulate at least one of one or more circuit elements according to said sequence.

131 (new):

The indicia of claim 130, further including visible indicators which are varied to prompt the user to manipulate said circuit elements.

132 (new):

The predetermined unique resistive value of claim 128, wherein said unique resistive value is established at the time of manufacture of each specific circuit element.

133 (new):

The acquiring means of claim 128, wherein an A/D converter accessible by a processor first attempts to acquire a voltage signal from along the power supply's output conductors and, if no line voltage is detected, the power supply generates a low-voltage signal along the output conductors which, upon acquiring an impedance value, causes any circuit element attached by the user to be detected by that element's unique resistive value.

134 (new):

A means of configuring an output of a manually-adjustable power supply based on an optimized voltage value previously acquired by preloading a battery, comprising:

interconnecting means for electrically coupling the elements of a system comprised of the manually-adjustable power supply, the battery, and a previously unknown device powered by said battery, said interconnecting means providing said device with both said power supply and said battery as alternate sources of power so that when the power supply is not active, the battery is automatically available;

processing means for executing program instructions embodied on a computer-readable medium, comprising:

indicating means for prompting the user to manipulate a selector which varies the output voltage;

comparing means in a workspace for determining if an acquired voltage value associated with the present position of the user-manipulated selector substantially matches said optimized voltage value;

indicating means for notifying the user of a failed outcome of the previous manipulation, and prompting the user to perform a further selector manipulation;

said user manipulation, then said comparing and indicating means repeating, until a user-selected voltage value substantially matches the optimized voltage value, and

varying means for altering the indicating means to notify the user of a successful outcome from the most recent selector manipulation;

whereby the manually-adjustable power supply is configured by a successful user manipulation of a selector, resulting in said power supply outputting a voltage that substantially matches the optimized voltage value previously determined by preloading a battery.

135 (new):

The interconnecting means of claim 134, further including preloading said battery by temporarily electrically attaching at least one of a plurality of substantial resistive elements capable of being combined, the resulting voltage sag providing data for computing an optimized voltage value used to configure said power supply.

136 (new):

The interconnecting means of claim 134, further including a selectively user-positionable connector plug which, in a first position of insertion into a mating receptacle, transfers electrical signals between said power supply and said battery and, in a second position, transfers electrical_signals between said power supply and said device.

83 (original):

The selectively user-positionable connector plug of claim 82, further including program instructions for configuring an accessible processor to generate at least one of one or more visual indicia to a user, thereby prompting said user

to manipulate said connector so that its contacts now transfer signals between said configurable power supply and said batter powered device.

137 (new):

The analyzing means of claim 134, wherein the comparing is performed by a voltage comparator circuit.

138 (new):

The interconnecting means of claim 134, further including an intermediate module electrically interposed between said manually-adjustable power supply and said battery, so that said comparing and indicating means based on selector manipulations is performed at said module.

139 (new):

The selector of claim 134, further including an indicia displaying a numerical representation of a multiplicity of available output voltages said power supply is capable of delivering.

140 (new):

The comparing means claim 134, wherein, based on a user-manipulation not resulting in a voltage match, an additional predetermined computation is performed for determining a value that represents a voltage difference between the user-selected value and the optimized voltage value, and whether the selected value is above or below the optimized voltage.

141 (new):

The additional calculations of claim 140, wherein the outcome of said determining results in varying the indicia in either:

a first mode for prompting the user to manipulate the selector in one direction, or

a second mode for prompting the user to manipulate the selector in an opposite direction, and

said varying the indicia after each user manipulation continuing, based on the outcome of each additional computation, until a final user manipulation substantially matches the selector value to the optimized voltage value.

142 (new):

The selector of claim 134, wherein the selector is a screen with an area for displaying voltage values input from a user input means.

143 (new):

The indicating means for prompting a user to manipulate a selector of claim 134, further including a means of configuring the power supply if the user fails to perform any manipulation, wherein a processor accessible to the power supply performs a predetermined computation of the acquired data resulting in an optimized voltage value, and a controller configures the output of the power supply to the optimized voltage value.

144 (new):

A means of configuring an output of a manually-configurable power supply based on data acquired by a previous accessing of a battery, comprising:

interconnecting means for electrically coupling elements into a system comprising the configurable power supply, the battery, and a previously-unknown device powered by said battery, said coupling resulting in the power supply being capable of bypassing said battery as a source of power for the powered device, without limiting said battery's ability to automatically access said device;

communicating means of at least a first and a second of said elements for transferring said acquired data, including at least one voltage value;

processing means at said first and second elements for executing program instructions embodied on a computer-readable medium, comprising:

> analyzing means in a workspace for comparing the acquired data with a value acquired from a selector that varies voltage, said selector located at only one user-accessible element of the system;
>
> prompting means at only one user-accessible element of the system for directing a manipulation of the selector, said prompting further including a means of distinguishably indicating when the user has successfully

manipulated the selector to a setting that represents a substantial match of the selected voltage value to the acquired data, and

controlling means for configuring the output of said power supply according to said substantially matched voltage values;

whereby said previous accessing of said battery provides data that is communicated between interconnected devices for manually-configuring the output of said power supply and, further,

whereby a user selects an output voltage for the power supply that is within an optimized range of battery output voltages.

145 (new):
The first and second elements of claim 144, wherein one of said elements is a module electrically coupled between the manually-configurable power supply and the battery.

146 (new):
The communicating means of claim 144, further including a modulator/demodulator accessible to the processors of the first and second elements, and data transfer is performed by powerline modulation along interconnecting conductors that electrically couple said first and second elements of the system.

147 (new):
The communicating means of claim 144, wherein recognized inter-device data protocols provide transfers along conductors electrically coupling said first and second elements of the system.

148 (new):
The communicating means of claim 144, wherein the communicating means provides wireless data transfer between said first and second elements of the system.

149 (new):

The communicating means of claim 144, wherein said first element is electrically attached to the second element by a connector interface at a data I/O port of one of the elements.

150 (new):

The communicating means of claim 149, wherein only said first element is processor-enabled, and said second element incorporates the selector, so that a selected value transfers to the processor for performing said analyzing means.

151 (new):

The communicating means of claim 144, wherein the data transferred is acquired from a "smart" battery.

152 (new):

The communicating means of claim 144, wherein the processor at the first element in the system performs at least one predetermined computation resulting in an optimized voltage value which then transfers as data to the second element, said optimized voltage value being then substantially matched by said user-selected voltage value.

153 (new):

The acquired data of claim 144, wherein a no-load maximum voltage value is acquired and a computation determines an optimized voltage value to which the user-selected voltage value is then matched prior to said power supply being configured.

154 (new):

The prompting means of claim 144, wherein a visual indicator stays in a first mode, until the user selects a setting that substantially matches the acquired voltage, whereupon the visual indicator changes to a distinguishably different second mode.

155 (new):

A means of configuring an output of a configurable power supply based on data acquired by previously accessing a battery, comprising:

interconnecting means for electrically coupling elements of a system comprising an interface at an unknown battery-powered device for attaching both said battery and said power supply, so that either is available for delivering power to the device, and at least a first and a second element of said system further comprising;

communicating means for transferring said acquired data between said first and second elements;

processing means for executing program instructions embodied on a computer-readable medium;

analyzing means in a work space for determining, based on said acquired data, an optimized voltage value representing at least a first output signal of the power supply, and

controlling means accessible to said processing means and power supply for configuring the output signal of the power supply;

whereby previously acquired battery data is communicated between interconnected elements for configuring an output of a configurable power supply.

156 (new):

The first and second elements of claim 155, wherein one of said elements is a module electrically coupled between a fixed-output power supply and the battery.

157 (new):

The communicating means of claim 155, wherein the communicating means provides wireless data transfer between said first and second elements of the system.

158 (new):

The communicating means of claim 155, further including a modulator/demodulator accessible to the processors of the first and second

elements, and data transfer is performed by powerline modulation along interconnecting conductors that electrically couple said first and second elements of the system.

159 (new):

The communicating means of claim 155, wherein said first element is electrically attached to the second element by a connector interface at a data I/O port of one of the elements.

160 (new):

The communicating means of claim 155, wherein the data transferred is acquired from a "smart" battery.

161 (new):

The communicating means of claim 155, wherein the processor at the second element in the system receives data representing an unprocessed voltage value, with which said processor performs at least one predetermined computation resulting in an optimized voltage value, said optimized voltage value being then used by the controlling means for configuring the output of the power supply.

162 (new):

The first and second elements of claim 155, wherein the first elements is embedded into fixtures in an environment and the second element is a user-operated battery-powered device capable of transferring data with said first element.

163 (new):

The first element of claim 162, further including connectivity of a multiplicity of said elements as nodes in a network.

87 (currently amended):

The ~~configurable power supply~~ first and second elements of claim 155, wherein said power supply is embedded into aircraft ~~systems~~ fixtures as the first element, for delivering power to mobile battery-powered devices as second elements by users attaching said devices to an accessible connector port.

89 (previously presented):

The computer readable medium of claim 155, wherein said computer readable medium is embedded, and said program instructions are written to operate in an embedded environment.

90 (previously presented):

The computer readable medium of claim 155, wherein said computer readable medium is incorporated into a battery pack, instead of a configurable power supply.

164 (new):

A means of configuring an output voltage signal of a configurable power supply for powering a previously unknown battery-powered device, comprising:

interconnecting means at said powered device for electrically coupling a battery and said configurable power supply, so that the power supply accesses first said battery and then said device;

preloading means for temporarily electrically attaching a first resistive element at said battery;

varying means for further preloading said battery by combining said first resistive element with at least one other available resistive element;

processing means accessible to said power supply for executing program instructions embodied on a computer-readable medium;

> acquiring means for capturing a voltage sag value when preloading, then again when varying said preloading;
>
> analyzing means performed in a work space for determining an anticipated fully-charged battery voltage based on at least one of the acquired voltage values, then further analyzing by performing at least one of one or more predetermined computations based on acquired and memorized voltage values, resulting in a value for configuring a first output voltage of said power supply, and

delivering the output voltage signal to the powered device from said configurable power supply, instead of from said battery.

165 (new):

The configurable power supply of claim 164, wherein the configuring is by means of a manually-adjustable selector manipulated by a user.

166 (new):

The configurable power supply of claim 164, wherein the power supply is automatically configuring, and is interconnected as a module electrically coupled between a fixed-output power supply and the battery.

81 (previously presented):

The interconnecting means of claim 164, further including a means for controlling the direction of electrical flow is strapped across conductors of a connector receptacle for providing said power supply simultaneous access to both said battery and said powered-device.

82 (previously presented):

The connector assembly of claim 164, further including a selectively user-positionable connector plug which, in a first position transfers electrical signals between the configurable power supply and the battery and, in a second position transfers electrical signals between the configurable power supply and the battery-powered device.

80 (previously presented):

The memorized voltage values of claim 164, further including a look-up table for determining an anticipated fully-charged, or a nearly-discharged, battery prior to the execution of further program instructions for said processor configuring said power supply.

93 (currently amended):

The ~~configurable power supply~~ <u>means of configuring an output voltage signal</u> of claim 164, further including:

a general-purpose processor capable of accessing an analog-to-digital converter for acquiring voltage values of said battery;

a means of interconnecting said battery to an A/D converter including a receptacle at said battery for mating to a connector plug;

a memory to which said processor writes:

> an acquired first value expressing a maximum output-voltage of said battery in a no-load condition;
>
> a second value being retrieved from a look-up table comprising a substantial matrix of predetermined battery design parameters expressed as both maximum- and minimum-voltage reference values for a multiplicity of battery cells-per-pack configurations arranged by chemistry types;

said computer readable medium further embodying program instructions for configuring said processor for performing a comparing of the acquired first value to the retrieved second value as a maximum-voltage reference value, and

said processor analyzes the results of said comparing by determining whether said acquired first value is within a predetermined tolerance range of voltage variance when compared to the retrieved maximum-voltage reference value, whereby said analyzing resulting in either:

> accepting said comparing as confirming that both voltage values are substantially the same, whereupon said processor writes both values to memory, or
>
> rejecting said comparing because said acquired first value falls outside said predetermined tolerance range of voltage variance when compared to said retrieved maximum-voltage reference value, whereupon said processor discards the rejected maximum-voltage reference value and then retrieves from among the previously

unselected maximum-voltage values in said look-up table another reference value for repeating said comparing and analyzing functions;

said retrieving, comparing and analyzing functions repeat until said analyzing results in an accepting of both the acquired first and retrieved maximum-voltage reference values, whereupon said processor writes both values to memory;

a means of electrically engaging at least one of one or more resistive elements as a predetermined electrical pre-load temporarily applied to said battery for said analog-to-digital converter acquiring from said battery a third value expressed as a minimum output-voltage, said processor then writing said acquired third value to memory;

further program instructions for configuring said processor for retrieving from said look-up table a fourth value expressing a predetermined minimum design voltage of a battery of the same cells-per-pack configuration and chemistry type as that of the previously accepted maximum-voltage reference value, said processor then writing the retrieved value to memory as a minimum-voltage reference value;

additional program instructions for configuring said processor for performing a comparing of the acquired third value to the retrieved minimum-voltage reference value;

further program instructions for configuring said processor for analyzing the results of said comparing by determining whether said acquired third value is within a predetermined tolerance range of voltage variance when compared to said retrieved minimum-voltage reference value, thereby said analyzing resulting in either:

accepting said comparing as confirming that both values are substantially the same, whereupon said processor writes both values to memory, or

rejecting said comparing because said acquired third value falls outside said predetermined tolerance range of voltage variance when compared to said retrieved minimum-voltage reference value, whereupon said processor retrieves from among the previously unselected minimum-voltage reference values in said look-up table another reference value for repeating said comparing and analyzing functions;

said retrieving, comparing and analyzing operations repeat until said analyzing results in an accepting of both the acquired third and retrieved maximum-voltage reference values, whereupon said processor writes both values to memory;

configuring said processor by further program instructions for executing a LIST function comprised of a compiling of the four previously accepted voltage values stored in memory, and

configuring said processor by additional program instructions for performing a SORT function upon the listed values by arranging the four previously accepted voltage values in ascending order,

resulting in only a correctly determined battery chemistry type from among those in said look-up table yielding sorted values listed in a specific sequential order consisting of:

first, the retrieved minimum-voltage reference value;

second, the acquired minimum battery voltage value;

third, the acquired maximum battery voltage value, and

fourth, the maximum-voltage reference value.

94 (previously presented):
The look-up table of claim 93, further including a charge rate for each battery chemistry type as a variable in a processor calculation to determine an impedance value of said at least ~~om~~ <u>one</u> of one or more resistive elements.

95 (previously presented):

The performing of a SORT function upon the listed values of claim 93, wherein an acquired maximum-voltage value that varies significantly from said predetermined battery design parameter because said battery being fully charged causes it to output an excessively elevated maximum voltage, whereupon said acquired maximum-voltage value is adjusted by the predetermined tolerance range of voltage variance being calculated into said maximum-voltage value prior to said sorting.

96 (previously presented):

The performing of a SORT function upon the listed values of claim 93, wherein an acquired minimum-voltage value that varies significantly from said predetermined battery design parameter because said battery being nearly discharged causes it to output an excessively low minimum voltage, whereupon said acquired minimum-voltage value is adjusted by the predetermined tolerance range of voltage variance being calculated into said minimum-voltage value prior to said sorting.

167 (new):

A method of determining a power requirement of a previously unknown battery-powered device, comprising:

interconnecting said powered device for receiving power by electrically coupling an installed battery and a configurable power supply thereto, so that the power supply accesses first said battery and then said device;

preloading said battery by temporarily electrically attaching a first resistive element thereto;

further preloading said battery by combining said first resistive element with at least one other available resistive element;

providing a processor accessible to said power supply for executing program instructions embodied on a computer-readable medium;

acquiring voltage sag values upon said preloading, then again when varying said preloading;

analyzing, in a work space, an anticipated fully-charged battery voltage based on at least one of the acquired voltage values, and

further analyzing by performing at least one of one or more predetermined computations based on acquired and memorized voltage values, resulting in determining a voltage value as the power requirement of the powered device;

whereby said determined value is for configuring a first output voltage signal of said power supply.

168 (new):

The configurable power supply of claim 167, wherein the power supply is automatically configuring, and is interconnected as a module electrically coupled between a manually-adjustable power supply and the battery.

169 (new):

The analyzing means of claim 167, wherein a no-load maximum voltage value is acquired and the result of the predetermined computations is a voltage value for configuring said power supply.

97 (currently amended):

The method of <u>determining a power requirement</u> of claim 167, further including a method of determining an anticipated fully charged or nearly discharged battery, comprising:

providing an apparatus for performing program instructions, comprising:

providing a processor capable of performing control functions;

providing a processor-controlled analog-to-digital converter interconnected to said battery via an interface comprised of at least one of one or more input/output ports accessible to a plurality of conductors and contacts of a connector assembly, said interface being

so configured as to provide a means of controllably electrically coupling at least one of one or more resistive elements as a temporary electrical preloading of said battery for outputting to said analog-to-digital converter at least one minimum battery voltage, instead of a previous outputting of at least one maximum battery voltage;

providing a memory accessible to said processor for storing voltage values acquired by said analog-to-digital converter;

providing a computer-readable medium including a look-up table, also stored in said memory, comprising a substantial matrix of battery design parameters expressed as voltage values of a multiplicity of batteries arranged by both chemistry type and typical cells-per-pack configurations;

said computer-readable medium further including program instructions for configuring said processor to perform a first comparing of the acquired maximum voltage value to each maximum design voltage value from said look-up table, and

further including program instructions for configuring said processor to perform a second comparing of the acquired minimum voltage value to each minimum design voltage value from said look-up table,

whereby said first comparing results in said acquired maximum voltage value being excessively elevated as compared to said maximum design voltage values from said look-up table, thereby determining said anticipated fully-charged battery and, further,

whereby said second comparing results in said acquired minimum voltage value being excessively depressed when as compared to said minimum design voltage values from said look-up table, thereby determining said anticipated nearly-discharged battery.

98 (previously presented):

The method of determining an anticipated fully charged battery or nearly discharged battery of claim 97, wherein excessively elevated or excessively depressed voltage values are compensated for by additional program

instructions for configuring said processor for adjusting the excessive voltage values downward or upward respectively by a predetermined voltage tolerance amount, resulting in adjusted maximum- or minimum-voltage values that are available for other program instructions.

99 (previously presented):

The preloading of claim 167, wherein at least one of one or more resistive elements is a power resistor having an impedance value substantial enough to simulate an operational load of said powered device.

100 (previously presented):

The temporary electrical preloading of claim 97, wherein the resistive value of at least one of said one or more resistive elements is determined by the charge rate of a battery based on its chemistry-type, as expressed in a look-up table that lists batteries by chemistry types and charge rates.

101 (previously presented):

The determining of a nearly-depleted battery of claim 97, wherein said excessively depressed minimum voltage value indicates a potentially unsafe battery.

102 (previously presented):

The determining of a nearly-depleted battery of claim 101, wherein said determining further includes a means of notifying a user of said potentially unsafe battery.

103 (currently amended):

The method of <u>determining the power requirement</u> of claim 167, further including a method of determining the chemistry-type of a battery, comprising:

providing a general-purpose processor capable of accessing an analog-to-digital converter for acquiring voltage values of said battery;

providing a means of interconnecting said battery to said A/D converter including a receptacle at said battery for mating to a user-positionable connector plug;

providing a memory to which said processor writes:

> an acquired first value expressing a maximum output-voltage of said battery in a no-load condition;
>
> a second value being retrieved from a look-up table comprising a substantial matrix of predetermined battery design parameters expressed as both maximum- and minimum-voltage reference values for a multiplicity of battery cells-per-pack configurations arranged by chemistry types;

providing a computer-readable medium embodying program instructions for configuring said processor for performing a comparing of the acquired first value to the retrieved second value as a maximum-voltage reference value, and

said processor analyzes the results of said comparing by determining whether said acquired first value is within a predetermined tolerance range of voltage variance when compared to the retrieved maximum-voltage reference value, thereby said analyzing resulting in either:

> accepting said comparing as confirming that both voltage values are substantially the same, whereupon said processor writes both values to memory, or
>
> rejecting said comparing because said acquired first value falls outside said predetermined tolerance range of voltage variance when compared to said retrieved maximum-voltage reference value, whereupon said processor discards the rejected maximum-voltage reference value and then retrieves from among the previously unselected maximum-voltage values in said look-up table another reference value for repeating said comparing and analyzing functions;

said retrieving, comparing and analyzing functions repeat until said analyzing results in an accepting of both the acquired first and retrieved maximum-voltage reference values, and said processor writes both values to memory;

providing a means of electrically engaging at least one of one or more resistive elements as a predetermined electrical pre-load temporarily applied to said battery for said analog-to-digital converter acquiring from said battery a third value expressed as a minimum output-voltage, said processor then writing said acquired third value to memory;

providing further program instructions for configuring said processor for retrieving from said look-up table a fourth value expressing a predetermined minimum design voltage of a battery of the same cells-per-pack configuration and chemistry type as that of the previously accepted maximum-voltage reference value, said processor then writing the retrieved value to memory as a minimum-voltage reference value;

providing additional program instructions for configuring said processor for performing a comparing of the acquired third value to the retrieved minimum-voltage reference value;

providing further program instructions for configuring said processor for analyzing the results of said comparing by determining whether said acquired third value is within a predetermined tolerance range of voltage variance when compared to said retrieved minimum-voltage reference value, thereby said analyzing resulting in either:

> accepting said comparing as confirming that both values are substantially the same, whereupon said processor writes both values to memory, or
>
> rejecting said comparing because said acquired third value falls outside said predetermined tolerance range of voltage variance when compared to said retrieved minimum-voltage reference value, whereupon said processor retrieves from among the previously unselected minimum-voltage reference values in said look-up table another reference value for repeating said comparing and analyzing functions;

said retrieving, comparing and analyzing operations repeat until said analyzing results in an accepting of both the acquired third and retrieved maximum-voltage reference values, and said processor writes both values to memory;

configuring said processor by further program instructions for executing a LIST function comprised of a compiling of the four previously accepted voltage values stored in memory, and

configuring said processor by additional program instructions for performing a SORT function upon the listed values by arranging the four previously accepted voltage values in ascending order,

whereby resulting in only a correctly determined battery chemistry type from among those in said look-up table yielding sorted values listed in a specific sequential order consisting of:

first, the retrieved minimum-voltage reference value;

second, the acquired minimum battery voltage value;

third, the acquired maximum battery voltage value, and

fourth, the maximum-voltage reference value.

104 (previously presented):

The receptacle for mating to a user-positionable connector plug of claim 103, wherein the connector plug includes a fist position for enabling access of said apparatus to said battery, and a second position for enabling access of said apparatus to a powered device.

105 (previously presented):

The receptacle for mating to a user-positionable connector plug of claim 103, further including a means of controlling the direction of electrical flow strapped across contacts of said receptacle, resulting in said processor having access to both said battery and said powered-device, whereby the need for the connector plug to be user-positionable is eliminated.

106 (previously presented):

The matrix of predetermined battery design parameters of claim 103, wherein said predetermined design parameters substantially represent industry standard values for charge rates, minimum and maximum voltages of individual battery cells, as well as typical battery pack configurations for at least one identifiable category of battery-powered devices.

107 (previously presented):

The category of battery-powered devices of claim 106, wherein said category is derived from analyzing battery voltages and the typical number of cells normally required to power a particular group of substantially similar devices.

108 (previously presented):

The predetermined tolerance range of voltage variance of claim 103, wherein said tolerance range allows for voltage variances caused by either fully-charged or nearly discharged batteries.